DOCUMENT RESUME

ED 472 985 PS 031 006

AUTHOR	Grimes, Jim S.
TITLE	Children and Their Fathers: A Review of the Literature Regarding Interpersonal and External Factors in the Development of Attachment.
PUB DATE	2002-08-00
NOTE	55p.; Doctoral Research Paper, Biola University.
PUB TYPE	Dissertations/Theses (040) -- Information Analyses (070)
EDRS PRICE	EDRS Price MF01/PC03 Plus Postage.
DESCRIPTORS	*Attachment Behavior; Child Rearing; *Children; *Fathers; Individual Differences; Infants; Literature Reviews; Parent Attitudes; *Parent Child Relationship; Personality; *Security (Psychology)
IDENTIFIERS	Marital Quality; *Security Classifications; *Security of Attachment

ABSTRACT

Noting that researchers, practitioners, and families are increasingly interested in the roles fathers play in raising their children, this doctoral research paper reviews the interpersonal and external factors involved in attachment development between fathers and their children. Methodological considerations include pertinent definitions, instruments, sampling procedures, and experimental design. Among the several methodological limitations of available studies are the sample size and selection factors. Factors shown to contribute to a secure attachment development in children are the attachment security of the father, the father's view of parenting and the infant, and the father's report on the quality of the marriage. Implications of the findings include fathers' need to understand the parenting of their own childhood and its influence on how they relate to their own children, and the option of developing clinical treatment plans focusing on building secure attachment. Research needs include the necessity of developing a standardized set of self-report measures and observations for studying attachment, and studying attachment in a wider variety of cultures, ethnicities, and socioeconomic groups. (Contains 33 references.) (KB)

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ED 472 985

CHILDREN AND THEIR FATHERS: A REVIEW OF THE LITERATURE REGARDING INTERPERSONAL AND EXTERNAL FACTORS IN THE DEVELOPMENT OF ATTACHMENT

A Doctoral Research Paper

Presented to

the Faculty of the Rosemead School of Psychology

Biola University

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Psychology

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by

Jim S. Grimes

August, 2002

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ABSTRACT

CHILDREN AND THEIR FATHERS: A REVIEW OF THE LITERATURE REGARDING INTERPERSONAL AND EXTERNAL FACTORS IN THE DEVELOPMENT OF ATTACHMENT

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Jim S. Grimes

Research investigating the interpersonal and external factors involved in attachment development between fathers and their children is reviewed. Methodological considerations include pertinent definitions, instruments, sampling procedures, and experimental design. Given the limited sampling procedures and lack of controlled studies, the conclusions offered are tentative. Factors shown to contribute to a secure attachment development in children are as follows: the attachment security of the father, the father's view of parenting and the infant, and the father's report on the quality of the marriage. Implications for parenting and further research are also discussed.

CHILDREN AND THEIR FATHERS: A REVIEW OF THE LITERATURE REGARDING INTERPERSONAL AND EXTERNAL FACTORS IN THE DEVELOPMENT OF ATTACHMENT

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CHILDREN AND THEIR FATHERS: A REVIEW OF THE LITERATURE REGARDING INTERPERSONAL AND EXTERNAL FACTORS IN THE DEVELOPMENT OF ATTACHMENT

Introduction

Researchers, practitioners, and families are increasingly interested in the roles fathers play in raising their children. Over the past 2 decades, Bowlby's (1969/1982) attachment theory and the work of Ainsworth and others (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Ainsworth & Wittig, 1969) have influenced many professionals in the field of psychology regarding the importance of infant-mother relationships, as well as the importance of the emotional bonds that develop during the first year. Although the research on mothers is burgeoning, much less is known about the factors that contribute to infant-father attachment.

This paper will review current literature on the development of secure attachments between fathers and their infants. Definitions of relevant terms and a survey of frequently utilized instruments will be followed by a discussion of samples and procedures that have been used in the studies reviewed. Factors that may affect the development of attachment security between fathers and their children will be explored by examining both paternal and infant characteristics. Finally, several articles that address specific populations will be

discussed. The paper will conclude with suggestions for fathering, clinical implications, and suggestions for future research.

Methodological Considerations

Researchers have endeavored to explicate elements that a father may contribute to his child's attachment style. However, a number of methodological issues regarding definition of terms, instruments used, samples, and research procedures must be considered. These concerns may directly impact results and, therefore, must be addressed prior to any attempt to draw generalizable conclusions from research findings regarding father-infant attachment.

Definitions

An important consideration in reviewing the literature regarding intrapersonal and interpersonal factors involved in attachment development between children and their fathers is the definition of commonly used terms. The common theme of the studies reviewed is that of fathers and attachment, and attachment is defined in highly similar ways across the studies. However, variations require clarification in order to make understandable comparisons between studies.

Attachment. Bowlby (1969/1982, 1977) is frequently considered the "father" of attachment theory. He defined attachment as a connection created with "some other differentiated and preferred individual, who is usually conceived as stronger and/or wiser" (1977, p. 203). He further stated,

> The theory of attachment is an attempt to explain both attachment behavior, with its episodic appearance and disappearance, and also the enduring attachments that children and other individuals make to particular others. In this theory the key concept is that of a behavioral system. (1988, p. 29) unnecessary

Bowlby (1969/1982) believed that attachments are directed towards certain people, are characterized by their long duration, and serve the biological function of survival. Attachment theory places particular emphasis on the primary status of positive intimate emotional bonds between individuals while the bond between the two individuals is being formed, maintained, or renewed. In addition, a strong negative component arises whenever the attachment is threatened or lost. Bowlby's theory and definition of attachment have been widely used across the literature (e.g., Bus, Belsky, van Ijzendoorn, & Crnic, 1997; Heidt-Kozisek, Pipp-Siegel, Easterbrooks, & Harmon, 1997; Kazura, 2000).

Child attachment styles. Most studies (e.g., Braungart-Rieker, Courtney, & Garwood, 1999; Heidt-Kozisek et al., 1997) used Ainsworth et al.'s (1978) classifications to define infant attachment security. Using data collected with the Strange Situation (SS), Ainsworth et al. identified four major categories of attachment: secure (B), insecure-avoidant (A), insecure-resistant (C), and insecure-disorganized (D). The Strange Situation procedure has seven situations wherein the child interacts with a parent and a stranger, and observations are used to determine the attachment classification. Although the Strange Situation will be defined in greater detail in the section on instruments used, it is described briefly here for the purposes of defining child attachment styles. When reunited

with their parents after being alone with the stranger, secure (B) children seek proximity to their parents, are cuddled, and begin to explore the environment again. Insecure-avoidant (A) children avoid their parents upon reunion after being alone with a stranger, whereas insecure-resistant (C) children seek proximity to their parents, yet resist parental contact. Insecure-disorganized (D) children display a pattern of behavior that fails to conform to the other three descriptions.

Adult attachment styles. Steele, Steele, and Fonagy (1996) categorized adult attachment styles using data collected with the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985). The AAI, and hour-long, semi-structured interview, was designed to identify one secure and two insecure attachment styles among adults based on respondents' general descriptions of childhood attachment relationships and memories, loss of or separations from attachment figures, and evaluations of how these experiences may have affected personality development. Those who have brief, incomplete interviews that are marked by a lack of fit between memories and evaluations are classified as insecure-dismissing (D). Interviews of insecure-preoccupied (E) adults are neither succinct nor complete and contain many irrelevant details, passive speech, or high current anger. Autonomous-secure (F) adults' interviews fulfill all or most of the criteria for coherence. A forth category, unresolved (U) was added as a result of studies conducted by Lichtenstein, Belsky, and Crnic (1998). These adults' interviews suggest unresolved trauma or loss in the past.

Variables

A wide range of variables have been examined in seeking to understand the factors that form or affect a father's attachment with his child. Most variables can be classified into one of the following four categories: (a) father characteristics, (b) family earner status, (c) marital factors, and (d) infant temperament. Variables that do not fit in these four categories will be mentioned briefly and will be discussed in greater detail within the specific studies to which they pertain.

Father's personality. Researchers examined fathers' characteristics (e.g., personality, child-rearing history, fathering behavior). Although several studies (Belsky, 1996; Ferketich & Mercer, 1995; Volling & Belsky, 1992) explored the impact of a father's personality on his child's attachment style, none assessed the father's personality as a whole. The focus of the studies was limited to issues of paternal self-esteem, ego-strength, and interpersonal affect. Self-esteem was defined as the extent to which he perceives himself as socially adequate and worthy of others' interest and care. Ego-strength was equated with not allowing his emotional needs to obscure his perception of reality, whereas interpersonal affect was defined as the extent to which he is oriented toward and concerned with others' feelings. Although many researchers hypothesized that these variables would affect the manner in which fathers related to their infants, their use of differential instrumentation precludes direct comparison between studies.

Father's upbringing. Another frequently explored variable was the father's perception of how he was raised. Studies focused on the following areas: (a) unconditional positive regard that reflected a general positive interest and

parental attentiveness to his needs, (b) conditional positive regard that reflected the positive demeanor of his parents, but also a sense that it was directly related to him being "good," (c) unconditional rejection that reflected a general disregard for him, and (d) conditional discipline that emphasized that his parents either disciplined or reprimanded him when he transgressed. Two composite scores were generated to reduce the number of variables being examined: unconditional positive regard (unconditional positive regard and conditional positive regard) and unconditional rejection (unconditional rejection and conditional discipline; Volling & Belsky, 1992).

Fathering behavior. Finally, researchers (Blair, Wenk, & Hardesty, 1994; Cox, Owen, Henderson, & Margand 1992; Ferketich, & Mercer, 1995; Kazura, 2000; Volling & Belsky, 1992) analyzed fathering behavior or parental involvement and attempted to predict attachment from data gathered by interviews and observations of father-child interactions. Although terminology varied across the studies, the core concept being studied was consistent. Fathering behavior or parental involvement was defined in several ways: (a) the parent's delight in the infant as measured by the parent expressing pleasure in the baby; (b) the parent's acceptance of the infant, the degree of acceptance or rejection of the baby as a result of the baby's interference with the parent's own autonomy; (c) the attitude of sensitivity to the baby's communications; and (4) the investment in parenting, the extent to which parenting was valued over other adult roles.

Family-earner status. Braungart-Rieker et al. (1999) and Volling and Belsky (1992) examined the impact of earner status upon the father's attachment with

his child. Since all fathers in the study were working outside the home for a minimum of 20 hours per week, the mother's employment status determined family-earner status (single or dual-earner). Single-earner families were those in which fathers were employed outside the home for 40 or more hours per week and mothers remained at home during infants' first year. Dual-earner families were categorized as those in which fathers were employed for 40 or more hours per week and mothers were employed for 20 or more hours per week outside the home.

Marital variables. Four studies examined the impact of marital environment on the development of attachment style between fathers and their children (Blair et al., 1994; Belsky, 1996; Ferketich & Mercer, 1995; Volling & Belsky, 1992). Variables included intimate relations, marital quality, social support, work-family relations, work-family support and the division of household labor.

Infant variables. Infant temperament and emotionality were employed to describe the infant's presence when alone or with the father. Braungart-Rieker et al. (1999) defined infant emotionality through two sets of recorded behaviors (affect and regulation). Affect was defined by infant vocalizations and facial expressions rated on a 7-point scale that ranged from –3 (negative expression of affect) to +3 (positive display of emotions). Infant regulation was coded by observable behaviors (present or absent) rated every 5 seconds.

Fonagy, Steele, Steele, Moran, and Higgitt (1991) characterized the reflective self as "the internal observer of mental life, the dialectical complement of the experiencing self. The reflective self knows that the self feels, perceives,

reacts, and so on" (p. 202). Heidt-Kozisek et al. (1997) examined the impact of knowledge of self, mother, and father in preterm and full-term infants on attachment style. Knowledge of self was identified by observations of the child when looking at the self in the mirror. Knowledge of mother or father was assessed by the infant observing the parent's image in a mirror.

Other variables. Hadadian (1995) examined parental attitudes toward deafness and security of attachment using the Attitude to Deafness Scale (Cowen, Bobrove, Rockway, & Stevenson, 1969), which consists of 25 items rated on a 4-point Likert scale. For scoring purposes, positive (+) items were inversely keyed. Therefore, high scores indicated more negativity towards deafness.

Overall, the definitions across the literature appeared to be appropriate for the research questions. The measures employed were standardized and appropriate for the variables being studied. However, findings may have been skewed because of the high number of variables included in the childrearing history, characteristics of the infant, and the marital relationship. Furthermore, data about the infant's temperament was reported by mothers' experience, rather than by the fathers' experience. Because fathers may have very different perceptions of their children than do their children's mothers, conclusions derived from these findings should be made with caution.

Instruments

Several instruments were common to the studies reviewed in this paper. The most frequently used instruments will be discussed in this section, and other

instruments will be discussed within the context of the particular studies in which they were used.

Attachment instruments. The primary assessment instrument utilized in the research regarding attachment style was the SS. The SS procedure involves seven 3-minute episodes designed to elicit attachment and exploratory behavior in children. In the first episode, parent and infant are alone in the room. A stranger enters, talks to the parent, and plays with the infant in the second episode. During the first separation (the third episode), the parent departs, leaving the infant and stranger together. In the fourth episode, the parent returns and the stranger exits. The second separation involves the parent's departure, leaving the infant alone in the room (the fifth episode), followed by the stranger's return (the sixth episode). The second reunion (the seventh episode) is identical to the fourth episode.

Hadadian (1995) used the Attachment Q-set (Waters & Deane, 1985). The Attachment Q-set is conducted through standardized observation by parents in a variety of naturalistic environments. This measure provides an overview of the entire domain of attachment relevant behaviors. The Attachment Q-set consists of 90 cards that range from the most characteristic (*like my child*) to the least characteristic (*unlike my child*) that parents sort into 9 groups in a specific order. The obtained Q-set for each subject is correlated with the criterion-sort, which is based on constructs related to attachment (e.g., security, sociability, dependency). The obtained Pearson correlation is an index of similarity that could be construed as the individual's attachment security score. High scores are those more closely resembling secure attachment.

Ferketich and Mercer (1995) used Leifer's (1977) attachment interview, a 10-item instrument designed to measure how parents feel about their children. The measure has acceptable content validity and was selected by these researchers due to its brevity. Items (e.g., "I feel tenderly towards my baby," "I feel disinterested in my baby") are rated from 1 to 4.

Marital instruments. Belsky (1996) and Volling and Belsky (1992) employed Braiker and Kelley's (1979) four-factor scale of intimate relations to assess quality of the marital relationship. This 25-item questionnaire assesses the interpersonal nature of the relationship in regard to the extent to which the husband actively attempts to enrich, improve, and maintain the relationship (maintenance) and the extent to which couples engage in marital disputes (conflict). In addition, the husband's feelings of love toward his wife and ambivalence toward their relationship are also assessed. Intercorrelations of maintenance and conflict subscales provides two composite measures of the marital relationship: (a) positive activities and sentiments and (b) negative activities and sentiments.

Couple reports provided information about the division of traditionally feminine household tasks among family members. Information was collected prenatally, and again at 3 and 9 months after the babies' births. Lower scores indicated greater participation of the father in traditionally feminine tasks (Volling & Belsky, 1992).

Father-related instruments. As previously mentioned, the studies reviewed examined specific aspects of fathers' personality using a variety of instruments. Typically, subscales of valid measures were used. For instance, Ferketich and

Mercer (1995) utilized Rosenberg's (1965) 10-item scale developed to assess the extent of self-acceptance; Belsky (1996) used the NEO Personality Inventory (Costa & McCrae, 1985) to identify agreeableness, neuroticism, and extraversion; and Volling and Belsky (1992) used several scales from two other instruments (Cattell, Eber, & Tatsuoka, 1970) designed to measure ego-strength, self-esteem, and interpersonal affect.

Childrearing history was gathered by self-report measures such as the Parental Acceptance-Rejection Questionnaire (Rohner, 1980), a 65-item instrument that examines the father's own upbringing. For fathering behaviors the majority of the information was garnered by observations of father-child interactions in the home or lab.

Infant temperament measures. Infant temperament (emotionality) was assessed by self-report measures the mother or father completed and/or observational data collected by trained observers in the home or lab. Difficulties are inherent in collecting data through self-report. Specifically, respondents may tend to over-report or under-report, trying to impress the interviewer or engaging in defensive coping strategy, without the examiner's awareness. A caveat to observational research is the potential for participants to be on good behavior rather than how they are at home because they are being watched. Nevertheless, self-report and observational date are worthy of consideration in examining factors that contribute to the development of attachment styles between fathers and their infants.

Samples and Procedures

In examining the literature, several methodological considerations and limitations concern sample size and selection. Because of these issues, the generalizability of the research may be limited. First, participants were drawn from a highly selective population of fathers. The samples used throughout the literature were primarily college-educated, middle-class Caucasians, in large cities who were identified through hospital birth records or local newspaper birth announcements. Some participants had been involved in a longitudinal study in the Philadelphia area. Since no studies involved fathers from rural settings, other SES classifications, or levels of education, the generalizability of findings to other populations is greatly cautioned since the participants do not adequately represent the general population. At best, researchers have provided data that is likely representative of middle-class Caucasian American families.

A second consideration in regard to sampling procedures is the number of individuals who failed to complete self-report measures and thus affected findings. Braungart-Rieker et al. (1999) explored the statistical influence of those who dropped out of the program or who failed to complete materials and discovered that those who dropped out were statistically different from those who completed the study. Furthermore, self-report measures were inherently subject to error due to respondents' potential desire to present themselves in a positive light. This bias can lead to false conclusions regarding the significance of statistical findings.

Although researchers did not randomly select participants for their studies, most used adequate sample sizes to assess broad concepts of attachment (e.g., secure vs. insecure). In many instances, the cases of insecure attachment (avoidant, resistant, and disorganized) were too few to compare. Despite these difficulties, however, results may lead to an increased understanding of factors that contribute to secure attachment between fathers and their children.

Experimental Design

Most experimental designs produced associative and inferential statistics, which were appropriate given the tenets of attachment theory and the father-child relationship. Many researchers sought to predict a child's attachment style based on various factors that included, but were not limited to, parents' style of attachment, fathering behavior, father's personality, and marital quality.

Many studies employed a variety of statistical measures (e.g., analysis of covariance, multiple analysis of covariance, log-linear analysis, hierarchical multiple regression, step-wise multiple regressions) to examine the relationship among variables. These statistical analyses provided estimates of the degree to which the variables may contribute to the development of attachment styles in children.

Several studies employed the use of correlations, ANOVAs, and MANOVAs to discern the degree of relationship between variables such as parenting behavior and child attachment style. Although the variables may be related, causality can only be implied by correlations or analysis of variance. Thus, those studies using these statistical procedures cannot confidently assert

that a child's attachment style was caused by the variable in question. Even so, predicting the probability of an attachment status could be an extremely valuable tool to provide fathers with information that can aid them in facilitating a secure attachment with their children.

Review of the Literature

Studies reviewed in this paper epitomize the current research regarding factors that may contribute to the development of an attachment style between a father and his child. In reviewing the research, the studies related to the father's impact will be examined first, followed by those related to infant characteristics, and concluding with studies that explored specific populations.

Father-Focused Research in Child Attachment

Given the diversity of variables researched in relation to fathers and their contributions to their children's attachment styles, it is vital to approach the studies in a systematic manner whereby subsequent findings build upon each other. Therefore, those studies with one or two components will be covered first, followed by studies of increasing complexity. Many studies also reported findings associated with mothers' contributions to infants attachment style. Since this paper focuses on fathers' impact, only maternal findings that are pertinent to fathers' relationship with their children will be discussed.

Ferketich and Mercer (1995) examined paternal-infant attachment among 79 experienced and 93 inexperienced fathers during postpartum hospitalization, and again at 1, 4, and 8 months following the birth. The sample was predominantly comprised of Caucasian men who were drawn from a larger

study of high- and low-risk parents. The goal was to identify differences that may exist between experienced and inexperienced fathers regarding attachment. The Strange Situation was employed to assess infant attachment style, using associative and inferential statistics to determine the impact of paternal experience.

Initial statistics revealed no significant differences between experienced and inexperienced fathers' attachment to their children, nor was there a significant main effect or interaction effect of group X time. However, findings from fathers' self-reports showed that inexperienced fathers reported higher levels of attachment than did experienced fathers (t [161] = 2.72, $p < .007$). This difference in perception between the groups may have been due to the excitement and novelty of the birth of the child for inexperienced fathers (Ferketich & Mercer, 1995).

Father-infant attachment was also significantly correlated with parental role competence (i.e., father's belief in his abilities to carry out parental tasks) at all four test times (postpartum hospitalization, 1, 4, 8 months) for both experienced (rs = .46, .54, .64, and .69, respectively) and inexperienced (rs = .46, .60, .61, and .38, respectively) fathers. This suggests that stronger father-infant attachment is associated with greater parental role competence (Ferketich & Mercer, 1995).

To predict father-infant attachment, multiple regressions were performed for each group at each of the 1-, 4-, and 8-month post-birth test periods (1,4, and 8 months). Factors that contributed to attachment among inexperienced fathers during postpartum hospitalization were fetal attachment (father's attachment to

the child) and mastery (father's sense of control in parenting situations), which accounted for 22% of the variance. Fetal attachment and depression accounted for 21% of the variance at 1 month postpartum, depression accounted for 9% of the variance at 4 months postpartum, and mastery accounted for 11% of the variance at 8 months postpartum (Ferketich & Mercer, 1995).

For experienced fathers, analyses of self-reports suggested that a number of factors contributed to differences in father-infant attachment. During postpartum hospitalization, fathers' attachment and depression accounted for 27% of the variance. At the 1 month assessment, fathers' attachment, experiences during labor and delivery, past relationships with their own mothers, anxiety level, and current contact with their own fathers accounted for 47% of the variance. At 4 months, anxiety and attachment accounted for 28% of the variance. At 8 months, the depression and experiences during labor and delivery accounted for 37% of the variance (Ferketich & Mercer, 1995).

Findings from this study (Ferketich & Mercer, 1995) showed that an inexperienced father's attachment and confidence in his parenting abilities were positively correlated with the development of a secure attachment style for his child. This study also showed that a growing father-child attachment, lower levels of reported depression, and a positive labor and delivery experience were correlated with the child's development of secure attachment.

Whereas Ferketich and Mercer (1995) examined the impact of men's level of paternal experience upon attachment styles in infants, Kromelow, Harding, and Touris (1990) studied the role of the father in the development of stranger sociability during the infant's second year. These researchers examined the

quality of attachment to parents and sociability toward a stranger using the Strange Situation procedure. They then compared level of stranger sociability with father present to level of stranger sociability with mother present. The sample consisted of 78 Caucasian middle- and upper-middleclass infants from intact families. Results indicated that boys who were insecurely attached to their fathers, but securely attached to their mothers were less sociable in the stranger present situation ($p < .005$). Also, these boys were less sociable in the stranger present condition than were boys who were securely attached to both parents ($p < .1$). Furthermore, the same child in different contexts demonstrated more sociable behavior in the father-present condition. This finding suggests that sociability to strangers is organized differently according to which parent is present with the child. Finally, the researchers noted that securely attached boys demonstrated greater sociability with the stranger in the father-present condition than in the mother-present condition ($r = -.46$, $p < .05$). Overall, these findings suggest that the presence of the father represents a distinct social context for the child, and that children seem to be more comfortable exploring the environment when father (rather than mother) is present.

Steele et al. (1996) further investigated differential parental impact by comparing attachment classifications of mothers, fathers, and infants. Gaining insight into parents' own childhood experiences and how they may influence parenting the next generation, Steele et al. attempted to predict infant attachment by parental style of attachment with their own parents. Participants were 100 pregnant women and their husbands who had participated in the London Parent-Child Project.

Initial comparisons were insignificant, so the attachment categories were collapsed into a secure X insecure matrix that revealed a significant dependency, χ^2 (1, N=90) = 3.78, $p \leq .05$. The child's attachment to parents was related to his or her interaction with both parents in that children with a secure attachment had both fathers and mothers with secure attachment styles (Steele et al., 1996).

However, attachment styles of father and mother examined individually generated some interesting findings. Chi-square results of maternal and infant-mother attachment revealed a strong relationship between mothers' security and the security of the child, χ^2 (9, N = 96) = 41.87, $p \leq .0001$. After correcting for chance maternal attachment security, there was a 51% probability of correctly identifying child attachment security, k = .39, χ^2 (1, N = 96) = 22.83, $p \leq .0001$. Similar results were also obtained in regard to paternal attachment, χ^2 (6, N = 90) = 18.94, $p \leq .005$. After correcting for chance paternal attachment security, child attachment security was correctly identified 35% of the time, k = .27 χ^2 (1, N = 90) = 9.55, $p \leq .002$ (Steele et al., 1996).

Steele et al. (1996) sought to control for (a) the association of father's attachment with his parents and the father-child SS, (b) the association of mother's attachment with her parents and the mother-child SS, and (c) the association of mother's and father's attachment with their respective parents. These findings imply that parents' attachment security alone does not predict children's attachment. Secondary analysis suggests that mother's security of attachment with her own parents has an impact on her child's attachment behavior with father. These findings regarding father-infant Strange Situation data provide a good fit for the data, χ^2 (8, N = 90) = 11.42, $p \leq .18$. However,

when this term was dropped from the model, the quality of the fit greatly decreased, χ^2 (1, N = 90) = 4.06, $p \leq .04$. This finding seems logical—that the primary caretaker's (usually mother) attachment security would influence the relationship between father and child.

Kazura (2000) investigated qualitative and quantitative paternal involvement related to attachment, play, and social interactions. Expanding on previous investigations of paternal influence, this study examined father-child relationships among a sample of 27 fathers and mothers and their children. Most participants in the sample were middleclass Caucasians. Analysis of the data revealed age effects for social interaction with fathers and mothers. Toddlers scored higher than did infants for social initiations during joint pretend play with fathers (t [21] = -4.30, $p < .001$). Toddlers also had higher social participation scores than did infants while interacting with fathers during joint free play (t [21] = -3.72, $p < .001$) and joint pretend play (t [21] = -5.01, $p < .001$). These age effects are not surprising because of children's emotional and physical development.

Across three categories of time spent with the infant (total time, time caregiving, time playing), fathers scored lower than did mothers. In general, fathers also reported less time spent with their children (t [22] = 5.04, $p < .001$). Furthermore, fathers reported less time spent providing childcare (t [22] = 5.11, $p < .001$), and less time spent engaging in play (t [22] = 3.20, $p < .01$.). These differences, however, may be due to the amount of time fathers are away from home working (Kazura, 2000).

Findings supported the importance of children's play with their fathers. Securely attached children produced higher scores during joint pretend play than did insecurely attached children (t [21] = -2.04, $p < .05$). Findings also supported the importance of social interactions with mothers. Fathers with secure relationships with their children were significantly more facilitative during play (t [21] = -2.20, $p < .05$), which suggests that fathers' involvement with their children during play is connected to the quality of their relationship (Kazura, 2000).

Kazura (2000) also investigated social interaction while controlling for age, and no differences in father-child interactions were apparent. This finding suggests that fathers' level of attachment with their children is generated through their interactions. Furthermore, father-child dyads generated higher mean scores for the three play-quality scores than did mother-child dyads. An analysis of covariance show that children played at significantly higher levels with their fathers during pretend play than they did with their mothers (F [1, 20] = 4.55, $p < .05$). During social interactions, fathers were also more directive with their children than were mothers during joint play (t [21] = -2.22, $p < .05$).

Bus et al. (1997) examined the "relating quality of parent-child interactive exchanges during book reading to contemporaneous and antecedent assessments of infant-parent attachment security" (p. 81). Participants in this longitudinal study of child and family development were 138 middle- and working-class families raising firstborn sons. Assessments were conducted at 12, 13, 18, and 20 months through observation of a parent-child dyad. Attachment classifications were determined for mothers at the first and third sessions and

for fathers at the second and fourth sessions. Following the 18- and 20-month sessions, mother and father were videotaped in a book-reading session with their child.

Utilizing multivariate analysis of variance, variables were grouped by attachment security with the father and mother. *Z* scores were derived for the dependent variables to assure commensurability, and logarithmic transformations were performed for the insecure classifications (avoidant, resistant, disorganized) to meet assumptions regarding normality of sampling distributions. Findings regarding fathers proved to be insignificant at both 13 and 20 months. Therefore, no conclusions could be drawn from fathers' profiles (Bus et al., 1997).

Cox et al. (1992) also investigated differential attachment with fathers and mothers among 38 married Caucasian couples and their children. Observations were made of the mother and father interacting with their firstborn, 3-month-old child, and parents were interviewed individually regarding time spent with their child, attitudes and reports about the infant, and their parental roles. The SS procedure was conducted with each parent at 12 months in an attempt to verify the prediction of infant attachment at the 12-month visit from information collected at the 3-month visit.

Hierarchical multiple regression analyses revealed a strong positive association between predictor variables and attachment security at the 1-year evaluation in the strange situation. Overall, findings provided a clear and concise picture of the importance of a father's relationship in the health and development of his child. The sample was consistent with general findings of

attachment research regarding incidence of secure and insecure classifications for father-child and mother-child dyads. Twenty-one percent of the father-child dyads were classified as insecure (resistant, avoidant, or disorganized) attachments, whereas 32% demonstrated some signs of security and high levels of avoidance or resistance. Twenty-six percent of the father-child dyads demonstrated a secure attachment, and 21% were classified as having a strong secure attachment. No correlation was found between attachment classifications in father-infant and mother-infant dyads, which suggests that these two relationships are independent of one another (Cox et al., 1992).

Cox et al. (1992) found a strong association between positive interactions between father and child and father's parental role and attitude toward the infant ($r = .48, p < .01$). An increase in the likelihood that the child would develop a secure attachment was associated with positive interactions between father and child ($r = .43, p < .01$) as well as positive parental attitudes toward the infant and parenting roles ($r = .54, p < .001$).

A multivariate analysis was conducted to determine the order of the four predictor variables (positive interaction, physical affection, attitude toward infant and parental role, time with infant) in accounting for differences in child attachment style. Positive interaction and physical affection were entered together to control for their effect, followed by parental attitude towards the infant and parenting and time spent with the infant. Results showed that positive paternal interaction and physical display of affection accounted for 25% of the variance (F [2, 30] = 5.00, $p < .05$; $R^2 = .25$]. Paternal attitudes toward the child and the parenting role accounted for an additional 12% of the variance (F

[1, 29] = 5.52, $p < .05$; $R^2 = .12$). The time fathers spent with their children also accounted for a significant proportion of the variance (F [1, 28] = 12.09, $p < .01$; $R^2 = .19$). However, the inclusion of time spent with the infant produced a negative effect on the attachment style developed by the child (Cox et al., 1992).

Overall, these findings suggest that a father's positive interaction with his child, the physical affection he displays, and the attitude he holds towards his child and parenting role have a strong impact on the attachment style developed by the infant. If the father responds positively, the child will likely develop a secure attachment, and the inverse is also true. However, increased time investment was negatively correlated with the development of secure attachment styles in the child. A second analysis was conducted to further examine this finding. Cox et al. (1992) changed the order of the variable entered into the equation to (a) time spent with the infant, (b) positive interaction and physical affection, and (c) paternal attitude towards the infant and parental roles.

Using this analytic strategy revealed that fathers' time spent with their infants accounted for an insignificant portion of the variance ($R^2 = .08$) in child attachment style. The fathers' positive interaction and physical affection accounted for 35% of the variance in child attachment style (F [2, 29] = 7.67, $p <$ .01; $R^2 = .35$]. In the final stage of the analysis, paternal attitude toward the infant and parental role accounted for an additional significant proportion of the variance (F [1, 28] = 6.13, $p < .05$; $R^2 = .12$). Findings from both analyses suggest that fathers' time spent with their infants has an insignificant impact on child attachment style. However, positive interactions, physical affection, and

paternal attitude have a strong impact on the development of a secure child attachment (Cox et al., 1992).

Braungart-Rieker et al. (1999) examined associations between parent-infant attachment and family type (single-earner vs. dual-earner families of sons and daughters), parent sensitivity, marital adjustment, infant emotionality, infant-mother attachment, and infant-father attachment. Seventy-seven families participated in the study that included questionnaires, interviews, and laboratory observations when children were 4, 12, and 13 months of age.

At the 4-month visit, parents completed a brief interview followed by a 4-minute free-play situation and a 4.5-minute structured situation in which mothers and fathers interacted with their child individually. The structured play consisted of three 90-second segments. First, the infant was placed in an infant seat in front of the parent, who was instructed (a) to engage the child in toy play, (b) to engage the child in face-to-face interaction without toys, and (c) to refrain from any vocalization or expression, maintaining a "still" (neutral) face. During the 12 and 13 month visits, the Strange Situation procedure was used as well as an additional 6-minute structured play segment (Braungart-Rieker et al., 1999).

Braungart-Rieker et al. (1999) explored potential differences between families who completed the study and those that did not, as well as potential impact the high attrition rate may have had on findings. The two groups differed on parental age, education, occupation, and family income (F [1, 103] = 13.46, $p < .001$). Those who did not complete the study were younger, less educated, had lower occupational ratings, and had lower family incomes.

Mothers who remained in the program were more sensitive at the start of the project than those with missing data or who dropped out of the program.

Braungart-Rieker et al. (1999) examined variables associated with families who completed the study to determine the extent to which (a) mothers and fathers were similar in sensitivity and self-reports of marital adjustment and (b) infants were similar in the levels of emotional behaviors they expressed towards mothers and fathers at 4 months. Mothers and fathers demonstrated similar patterns of sensitivity and marital adjustment, and infants showed regular patterns of emotionality with both mothers and fathers. Interparental correlations were also significant, except for sensitivity during toy play.

Significant congruence was found between infant-mother and infant-father attachments on all three levels of attachment for both mothers (χ^2 [1, N = 77] = 7.00, $p < .01$) and fathers (χ^2 [4, N = 77] = 23.63, $p < .001$). Eleven infants were classified as insecure with both parents, 43 were classified as secure with both parents, 7 were classified as secure with father and insecure with mother, and 16 were classified as secure with mother and insecure with father. In other words, if an infant has a secure attachment with mother, he or she is likely to have a secure attachment with father (Braungart-Rieker et al., 1999).

Chi-square analyses were performed to examine whether infant-mother and infant-father attachment differed as a function of family type. Infant-mother attachments by family type produced insignificant findings. However, the infant-father attachments by family type was significant (χ^2 [3, N = 77] = 10.37, p = .02]. Furthermore, results showed a greater number of securely attached boys in single-earner households and a greater number of insecurely attached boys in

dual-earner households (χ^2 [1, N = 44] = 8.43, p < .01). This may be due to the decrease in time and energy parents have available to invest in their children in dual-earner households (Braungart-Rieker et al., 1999).

Braungart-Rieker et al. (1999) conducted six multiple analyses of covariance (three for each parent) to determine the extent to which parental sensitivity, marital adjustment, and infant emotionality differed by infant gender, family earner status, and the combination of infant gender and earner status. Findings with parental sensitivity as the dependent variable revealed a significant effect for infant gender by earner status interaction for fathers (F [1, 77] = 3.95, p < .05). Fathers of daughters in dual-earner families were significantly more sensitive during the free play than were fathers of daughters in single-earner and fathers of sons in dual-and single-earner families (F [3, 77] = 6.96, p < .001]. They were also significantly more sensitive during toy play than were fathers of daughters in single-earner families and fathers of sons in dual-earner families (F [3, 77] = 7.82, p < .001).

Results with marital adjustment factors as dependent variables showed a significant effect for infant gender by earner status interaction for fathers (F [1, 77] = 3.68, p < .001). Fathers of sons in dual-earner households were significantly lower in expression of affection than were fathers of sons in single-earner households or fathers of daughters in dual-earner households (F [4, 77] = 8.00, p < .001). In addition, fathers of daughters in single-earner families were also lower in expression of affection than were fathers of sons in single-earner families. Infant-father emotionality was also significant (F [1, 77] = 2.34, p < .05). Infant-father variables yielded a main effect for earner status with significant

findings for negative (F [5, 77] = 3.63, $p < .10$) and positive (F [5, 77] = 3.27, $p < .10$) affect. Infants in dual-earner households showed more negative and less positive affect towards fathers than did infants in single-earner families (Braungart-Rieker et al., 1999).

These findings may reflect more characterological issues for fathers wherein they are more or less able to connect with or express their emotions. They may also be due to the amount of time and energy fathers are investing at work, leaving them with little to offer their families upon returning home. These findings may be a reflection of cultural values regarding gender roles and responsibilities in the family.

Braungart-Rieker et al. (1999) performed two hierarchical logistic regression models to examine whether parental sensitivity, marital adjustment, and infant emotionality predicted infant-mother or infant-father attachment security status. The four family types were recoded as a two-category variable of family status since boys in dual-earner families appeared to be at greater risk for insecure attachments. Boys in dual-earner households were assigned a value of 1 and girls in dual-earner households and all infants in single-earner households were assigned a value of 0. Furthermore, composite scores for sensitivity, marital adjustment, and infant emotionality limited the number of predictor variables.

Female infants and those in single-earner households whose mothers were more sensitive tended to have more secure infant-mother attachments. Boys in dual-earner families who were more emotional were more likely to

have a secure attachment with their fathers (t [18] = .55, $p < .01$). Findings regarding other variables were insignificant.

Volling and Belsky (1992) examined characteristics of fathers, infants, and marital relationships as antecedents to infant-father attachments in dual-earner and single-earner families. The authors gathered data from 113 fathers before the birth of their first children, as well as when their children were 3 and 9 months old. Strange Situation assessments were conducted when the infants were 13 months of age. Variables included fathers' personality, their own childrearing history, parenting behavior toward their own children, infant temperament, and aspects of the marital relationship (marital conflict/harmony and division of labor). A 2 x 2 (family-earner status X attachment) ANOVA was conducted on fathering behaviors, infant temperament, marital conflict, and division of labor. Fathers' personality did not distinguish between secure and insecure child attachment.

Volling and Belsky (1992) also explored the impact of fathers' own childhood experience of parenting. Surprisingly, fathers of securely attached infants reported less unconditional positive regard in their families of origin than did fathers of insecurely attached infants. Infants classified as securely attached to their fathers were more difficult to care for at 3 months of age than were those classified as insecurely attached to fathers (t [109] = 2.00, $p < .05$, two-tailed). At 9 months of age, however, no significant differences were apparent between mothers' temperament ratings for the two groups of infants, suggesting that infant emotionality had changed over time. This finding may

also be driven by a first-time mother's increased confidence in caring for her child.

Fathers of securely attached infants reported greater involvement in traditionally feminine tasks than did fathers of insecurely attached infants (F [1, 90] = 4.59, $p < 0.05$). A significant main effect was also discovered for earner status (F [1, 90] = 18.84, $p < 0.0001$], a finding that was further supported by a time X earner-status interaction (F [2, 89] = 10.23, $p < 0.0001$). Follow-up t tests revealed that single-earner fathers were performing significantly fewer feminine household tasks at prenatal (t [112] 2.27, $p < .05$), 3-month (t [112] = 4.13, $p < .001$), and 9-month (t [112] = 6.74, $p < .001$) assessments than were dual-earner fathers. Single-earner fathers also became less involved in the household division of labor over time (t [61] = 6.39, $p < .0001$), whereas dual-earner fathers' involvement remained relatively stable (Volling & Belsky, 1992).

The following five variables significantly predicted infant-father attachment security: unconditional positive regard experienced by the father during his own childhood, change in difficult infant temperament between 3 and 9 months of age, the average of 3- and 9-month levels of father responsiveness, change in marital negativity between 3 and 9 months of age, and the average of the 3- and 9-month scores regarding division of household labor. However, these findings need to be interpreted with caution since they may be heavily influenced by cultural values and beliefs. Although this may be descriptive of Caucasian middle- or working-class families, they may or may not be applicable to African American, Asian American, or Latino American families.

Belsky (1996) continued this research in examining antecedents of infant-father attachment security. A sample of 126 middle- and working-class Caucasian fathers and their firstborn sons were assessed using the Strange Situation procedure when the boys were 13 months old. Three months prior to this assessment, fathers completed numerous questionnaires regarding parents' personality (agreeableness, neuroticism, extraversion), infant temperament (positive, negative), and social factors (marital quality, social support, work-family relations). A one-way multivariate analysis of variance contrasted the three attachment groups with two multivariate contrasts. Findings were significant for secure versus insecure (F [22, 216] = 1.96, $p < .01$) and insecure-avoidant versus insecure-resistant (F [11, 109] = 2.36, $p < .05$).

Further examination indicated that secure infants had fathers who were significantly more extraverted (F [1, 123] = 7.21, $p < .01$) and agreeable (F [1, 123] = 5.97, $p < .05$) than were fathers of insecure infants. Fathers of secure infants reported somewhat more positive marriages (F [1, 123] = 3.19, $p < .10$) than did fathers of insecure infants. Fathers of secure infants also reported greater harmony or support in work-family relations (F [1, 123] = 6.49, $p < .05$) than did fathers of insecure infants (Belsky, 1996).

Belsky (1996) also performed a discriminant functions analysis of the eleven dependent variables to determine their potential for discriminating among the three attachment groups. These variables correctly predicted the attachment classification of 56% of infants ($z = 4.54$, $p < .001$, two-tailed). A parallel analysis revealed the power of the same set of variables to discriminate secure from insecure infants, with 69% of the participants correctly identified

($z = 3.93$, $p < .001$). The discriminant function analysis also offered two canonical functions that provided insight into the relative importance of variables in discriminating the three attachment groups. Consideration of the two functions suggests that the first primarily discriminates secure from insecure participants, for the most heavily weighted variables are the same as those that distinguish secure and insecure infants in the univariate comparisons (extraversion = .59, agreeableness = .49, work-family support = .41). Secure and insecure infants differed significantly on the variables based on this function, which is consistent with the proposed interpretations (F [1, 124] = 25.70, $p < .01$).

Belsky (1996) also examined the relationship of parents, infants, and social contexts in relationship to attachment security to investigate the prediction that cumulative resources would be associated with attachment security. First, the larger constructs were either all variables summed together within a set or one variable subtracted from another to create domain scores. Second, scores for marital-quality, social-support, and work-family sets were averaged, and the resulting composite scores for the social-context domain were divided at the median. Each subject then received one point when the domain score fell above the median. In the final step of the analysis, the percentage of subjects with secure attachment was calculated as a function of the well-resourced domains. Chi-square analysis indicated that security was significantly more likely when two or three domain scores were above the median than when one or none were (χ^2 [1, $N = 126$] = 2.48, $p < .05$).

Infant-Focused Research in Child Attachment

Braungart-Rieker, Garwood, Powers, and Wang (2001) examined the extent to which parental sensitivity, infant affect, and affect regulation at 4 months of age predicted mother-infant and father-infant attachment at 1 year of age. Participants were 86 families (all but 7 of which were middleclass Caucasians) who completed the 4-, 12-, and 13-month assessments. Parental sensitivity was assessed by observing face-to-face interaction between the parent-child. Infant affect and regulatory behaviors were scored from mother-infant and father-infant still-face segments at 4 months. The Strange Situation procedure was utilized to determine infant attachment to mother and father at 12- and 13-month visits, respectively.

Examination of predictor variables at 4 months showed that mothers and fathers differed on infant self-regulation (F [1, 90] = 8.31, $p < .01$) and infant parent-focused regulation (F [1, 90] = 9.74, $p < .01$). Infants demonstrated greater self-regulation with their mothers and more parent-focused regulation with their fathers (Braungart-Rieker et al., 2001).

Assessment of the distribution patterns for attachment classifications of infant-mother and infant-father dyads revealed a significant difference for the insecure-resistant attachment classification (χ^2 [1, 86] = 8.00, $p < .01$]. The proportion of infants classified as insecure-resistant in this study was significantly higher for fathers than that reported in other middleclass non-risk samples (Braungart-Rieker et al., 2001).

Congruency among infant-mother and infant-father variables at 4 months was significant and consistent ($p < .05$ - .001) for infant-mother and

infant-father dyads. In researching the congruency in infants' attachment classifications with mother and father, a 4 X 4 (infant-mother attachment X infant-father attachment) analysis yielded significant results that suggest a significant relationship between mother and father attachments (χ^2 [9, N = 86] = 34.41, $p < .001$).

In addition, Braungart-Rieker et al. (2001) sought to predict infant-parent attachment at 12 months based on parent sensitivity and infant still-face responses at 4 months. These factors were investigated through two MANOVAs to determine if parent sensitivity and infant affect and regulation behaviors differed at 4 months for attachment groups. A follow-up univariate analysis was conducted on significant findings, and a second set of statistics involving the use of discriminant function analysis was conducted. However, results specifically related to infant-father attachment were insignificant, which implies that 12-month infant-father attachment groups did not significantly differ from 4 month infant-father factors. Given the high correlations found in regard to parental sensitivity, infant positive affect, infant negative affect, infant self-regulation, and infant parent-focused regulation, this finding is surprising. A possible explanation is that different processes may be involved in the development of infant-father attachment than in infant-mother attachment.

Fonagy et al. (1991) examined the reflective self in parent and child and its significance for security of attachment. According to Fonagy et al., "the reflective self, constructs an image of the self as observed and of the other as observing and in both cases includes a capacity to reflect upon such

observations" (p. 202). For example, the representation of oneself as being happy or loved is distinct from feeling happy or loved.

Fonagy et al. (1991) gathered data from the Anna Freud Center-University College London Parent-Child Project, which consisted of a predominantly middleclass group of 100 first-time mothers and fathers. Prior to the birth of the their children, parental attachment patterns were assessed using the Adult Attachment Interview and were used as potential predictors of infant attachment at 1-year and at 18 months of age. Reflective self-functioning scores were derived from the quality of parental responses to the AAI. Findings revealed that mothers' reflective self-functioning scores were strongly associated with interview classification (F [2, 94] = 6.11, $p < .01$]. Similar findings were also revealed for fathers' reflective self-functioning scores (F [2, 81] = 14.6, $p < .01$). Furthermore, the interview coherence had a large impact on reflective self-functioning scores (.734 and.638 for mothers and fathers, respectively).

Chi-square analysis of the association between infant attachment security and parental self-function indicated that reflective-self functioning scores were not due simply to chance (χ^2 [2, 94] = 14.4, $p < .001$; χ^2 [1, 81] = 7.35, $p < .01$ for mothers and fathers, respectively). In other words, reflective-self functioning was able to correctly identify infant attachment 75% of the time. These findings suggest that a father has the capacity to provide his child with an environment that facilitates the development of a secure relationship (Fonagy et al., 1991).

Heidt-Kozisek et al. (1997) examined full-term and preterm toddlers' featural knowledge of self, mother, and father and its relation to individual differences in age, attachment status, and cognitive ability. Self/other featural

knowledge was defined by scores on a series of tasks with varying complexity to assess development. Infants completed tasks at 13 and 20 months of age. Quality of attachment was assessed by the Strange Situation procedure, and infant mental and psychomotor development was assessed by Bayley's Scales of Infant Development (Bayley, 1969). Participants were 30 full-term and 30 preterm infants from intact middleclass families. Preterm infants had to meet criteria that insured their health and ability to participate in the research. The tasks were designed to require increasingly greater representational knowledge of self, mother, and father. At first, stickers were placed on the hand and nose of infant, mother, and father, and then a dot of rouge was placed on the nose of the infant, mother, and father. The infant viewed self, mother, and father in a mirror. Finally, the authors asked a series of questions regarding spatial location, verbal label, and gender of self and parent. Each session was videotaped and scored later by trained observers who demonstrated high interrater reliability (kappa = .83).

Heidt-Kozisek et al. (1997) employed a variety of statistical measures in assessing full-term and preterm toddlers' featural knowledge of self, mother, and father in relation to individual differences in age, attachment status, and cognitive ability. A 2 X 2 X 2 X 2 ANOVA was conducted to examine the relationship between the variables with term status serving as between-subject factor and parent (mother, father), age (13 and 20 months), and task version (self, parent) as within-subject factors. A series of hierarchical regression models were calculated to assess the relation between prematurity status and attachment in predicting self/other knowledge.

Heidt-Kozisek et al. (1997) found that toddlers at 20-months completed more tasks than they did at 13-months (F [1,50] = 92.32, $p < .001$). This finding is not surprising since toddlers are expected to be able to perform at a higher rate. Toddlers also passed more tasks related to parents than tasks pertaining to themselves (F [1, 50] = 52.89, $p < .001$). This finding suggests that toddlers at this age are more aware of their parents and their parents' image than they are of their own. A significant effect was also discovered for age X person between 13 and 20 months (F [1, 50] = 4.90, $p < .04$}. The term X parent X person analysis indicated that full-term infants demonstrated more complex knowledge of their mothers than of their fathers (F [1, 50)] = 6.48, $p < .02$).

Overall, Heidt-Kozisek et al.'s (1997) findings suggest that infants are more attentive to their caregivers and they become increasingly adept at completing tasks as they grow. The finding that full-term infants demonstrated a more complex knowledge of their mother than of their fathers may be due to the level of maternal caretaking with these infants. Infants' knowledge of self was closely tied to their knowledge of their parents. Infants knowledge of self positively correlated with their knowledge of their mothers at 13 and 20 months (r [57] = .40, $p < .001$; r [54] = .60, $p < .001$, respectively). Similar findings were generated with their knowledge of their fathers as well [13 months r (57) = .44, p < .001 and 20 months r (54) = .66, p < .001]. Findings also revealed that as infants' knowledge of their mothers, fathers, or both increase, so will their self-knowledge.

When tested with their mothers, infants had self-scores that were significantly correlated with their self-scores when tested with their fathers at 13

and 20 months (r [55] = .33, $p < .01$; r [52] = .38, $p < .01$]. Infants who recognized one parent were likely to recognize the other, and their knowledge of parental features was significantly correlated at 13 and 20 months (r [55)] = .25, $p < .05$; r [52] = .38, $p < .01$). Securely attached infants demonstrated greater complexity of knowledge than did insecurely attached toddlers. Infants' knowledge of their father at 13 months was positively associated with their attachment status (F change [1, 54] = 5.48, $p < .05$). Toddlers' knowledge of their fathers accounted for 9% of the variance in child attachment status (Heidt-Kozisek et al., 1997).

Heidt-Kozisek et al. (1997) also sought to understand the influence of mental and psychomotor development on self/parent knowledge through analysis of the Mental Development Index (MDI) of the Bailey Scales of Infant Development. When the toddlers were assessed with their fathers, MDI and attachment status at 20 months accounted for 17% of the variance in infants' knowledge of self. When assessed with their mothers, MDI at 20 months accounts for 9% of the variance in infants' knowledge of self. When tested with fathers, MDI and attachment accounted for 6% and 18% of the variance, respectively, in infants' knowledge of others. In total, MDI and attachment accounted for 24% of the variance in infants' featural knowledge of their father. Also, the change in the toddlers' knowledge of their fathers was positively predicted by change in attachment status, accounting for 18% of the variance (F change [1, 51] = 10.72, $p < .005$). These findings suggest that infants' knowledge of self and father is positively influenced by cognitive development. Thus, as expected, children develop a greater internal representation of their parents as they grow.

Other Attachment Research

In a study that examined the significance of marital quality and parental involvement, Blair et al. (1994) hypothesized that marital quality would influence parental involvement. This may be especially significant for fathers since men tend to have unified views of the parent/spouse role, whereas women tend to perceive these roles as distinct. This study is included here because of the implications it has regarding marital satisfaction and child attachment security. Data for this study were gleaned from the National Survey of Families and Households (Sweet, Bumpass, & Call, 1988). Participants were 2,073 mothers and fathers from married-couple households with at least one child. Parental involvement, parental control (supportiveness and restrictiveness), and marital quality (e.g., frequency of disagreements, potential for divorce, report of a less-than-happy marriage, less-than-daily contact) were assessed by responses to questionnaires completed by parents.

Blair et al. (1994) examined group means and conducted a multivariate regression analysis of the data. Both parent groups reported high levels of paternal (M = 3.18) and maternal (M = 4.18) involvement. Fathers were less supportive (M = 3.19) and restrictive (M = 2.22) than were mothers (M = 3.42 and 2.35 for supportive and restrictive, respectively). Fathers' interactions with their children were negatively impacted when they viewed their marriages as unhappy, had less-than-daily contact with their wives, and felt their marriages were in trouble. Thus, fathers were strongly influenced by their marital satisfaction. Fathers were less supportive of their children when they believed a

divorce was possible and when they had less-than-daily contact with their wives.

Parental supportiveness accounted for less than 10% of the variance in a troubled marriage. Of that percentage, 30% was attributable to quality of marriage. These findings suggest that fathers are more restrictive with their children when a high level of disagreement is present in the marital dyad and they have less-than-daily contact with their wives. These two variables accounted for 35% of parental restrictiveness variance in marital quality. Approximately 30% of those who reported high levels of disagreement, the possibility of divorce, unhappy marriages, less-than-daily contact with their spouses, and troubled marriages, indicated that they felt detached from their parental roles. Ultimately, these findings suggest that fathers' perceptions of their parental roles are moderately impacted by the quality of the marital relationship (Blair, et al., 1994).

Easterbrooks (1989) investigated whether perinatal risk status was related to dimensions of infants' attachment relationships with their parents. Participants were 60 infants (30 full-term, 30 low birth weight, preterm infants seen at corrected gestational age) from intact middleclass Caucasian families. The infants were assessed at 13 and 20 months of age regarding quality of attachment to both parents. Three aspects of the attachment relationship were examined: security, temporal stability, and similarity of attachment to mother and father.

Easterbrooks (1989) found that 63% of the infants assessed at 13 months had secure attachments with their mothers. The remaining 37% were classified

as follows: 7% insecure-avoidant, 21% insecure-resistant, and 9% insecure-disorganized. Similar distributions were observed in assessment of father-infant attachment (63% secure, 19% insecure-avoidant, 10% insecure-resistant, and 8% insecure-disorganized). At 20 months, 71% of the toddlers were securely attached to their mothers, and 29% were insecurely (16% insecure-avoidant, 10% insecure-resistant, and 3% insecure-disorganized) attached to their mothers. Seventy-three percent were securely attached to their fathers, and 27% were insecurely attached (20% insecure-avoidant and 7% insecure-disorganized) to their fathers.

Analysis of attachment security, birth status, gender of parent, and child age yielded insignificant results, as did a 2 X 2 X 2 (birth status X age X parent) MANOVA and birth status and similarity of child attachment with mother or father. Overall stability of attachment was 58% with mothers and 56% with fathers. No evidence was found to support that birth status has an effect on child attachment style (Easterbrooks, 1989).

Hadadian's (1995) research on the relationship between deaf children's attachment security and hearing parents and parental attitudes toward deafness was conducted with a sample of 30 Caucasian deaf children from intact families. The instruments employed by the author to conduct this research were the Attachment Q-Set (Waters & Deane, 1985), the Attitude to Deafness Scale (Cowen et al., 1969), and parental interviews. Pearson product-moment correlations and matched sample *t* tests were used to analyze the data. An attachment score was derived from parents' Q-sort attachment scores. The higher the score, the closer they were to the ideal attachment relationship.

Scores of deaf children and their mothers ranged from -.16 to .63 (M =.37, SD = .21) and were correlated with attachment criterion-sort. With fathers, scores ranged from -.07 to .56 (M= .38, SD. = .16).

Insignificant t-test results suggest that mothers and fathers of deaf children attach equally to their children. Parents can form bonds with their sons or daughters that are unique and dependent upon the particular individuals involved. A negative correlation existed, however, between father- and mother-expressed attitudes towards deafness and the security of attachment relationships with their deaf children (r = -.55, p = .001 and r = -.50, p = .007 for mothers and fathers, respectively). The more negative parents' perception was of having a deaf child, the more likely the child would develop an insecure attachment. This finding implies that parents' beliefs or attitudes about their children and/or parenting are related to the development and quality of their children's attachment style.

Conclusions

This literature review investigated current research on fathers and the attachment security developed by their children. Most studies used the Strange Situation procedure to define an infant attachment, and many additional variables were drawn from observational data and self-report measures that are subject to response bias. Researchers frequently set study-specific criteria for observational data and self-report measures rather than employing standardized measures. Numerous researchers sought to discern the contribution of various factors in the development of secure attachment

between father and child through use of inferential and descriptive statistics. However, the absence of controlled studies makes comparisons of findings problematic.

In general, samples were limited in terms of ethnicity and culture, which drastically reduces the potential applicability of findings to the diverse population of the United States. Despite these shortcomings, however, the research demonstrates a strong relationship between security of child attachment and fathers' perception of marital quality, time fathers spend with their children, fathers' attitudes toward parenting, and fathers' attachment style with their own parents. Many of these results do not come as a surprise and are what would be expected given the research.

Implications for Fathers

It is important to address many of the issues mentioned in the literature that directly show how a father impacts the attachment development of his child. First, fathers need to understand their own childhood rearing and its influence on the manner in which they relate to their children. They need to reflect on their own childhood and how they feel about the manner in which their parents raised them. This can be accomplished through journaling or thinking about significant events or circumstances from childhood. By increasing their understanding, fathers can choose to avoid or implement skills they learned from their own parents. Fathers may also benefit from parenting courses that provide them with additional skills for responding to their children and that may subsequently aid in developing a secure attachment.

Second, the quality of marriage the father experiences has been shown to correlate with child attachment development. Although a correlation does not prove causality, some relationship nevertheless exists between the two factors. Therefore, fathers may find it beneficial to invest in their marriages, placing their relationships with their wives in high priority. This may mean scheduling regular time to spend with a spouse to enrich the relationship. Furthermore, counseling may also be beneficial in improving marital relationship quality by providing skills needed to build a loving and lasting relationship.

Clinical Implications

Several aspects of this body of research hold implications for clinical work. First, although there are numerous parenting courses that can be offered, they may not be the only option needed. A course specifically created and designed for all classifications of fathers (e.g., biological, foster, adoptive, step) could provide instrumental information on child growth and development as well as how a man might increase the probability of his child developing a secure attachment.

Second, when an attachment measure can be completed in the office, clinicians can then develop a treatment plan that focuses on building a secure style of attachment. This type of instrument could prove to be extremely useful when working with families who have come into counseling over problems they are experiencing with a child that is acting out. It will help to identify the attachment style of everyone in the family, providing the counselor with rich information on how to approach and respond to the problems the family is presenting. Recommendations can also be offered to the parents that will help

to develop a secure attachment with a child. Working to bring about changes in the family that contribute to building a secure attachment can conceivably lead to reductions in the problems the family is encountering as members feel comfortable and safe sharing their feelings.

Suggestions for Future Research

Initially, it is clearly evident that in spite of recent advancements in the understanding of the importance fathers play in the development of their children, little time and energy is being devoted to discovering specifically how the father contributes to his child's development. The research conducted in this review represents movement in the right direction, however, the depths of this research area have yet to be plumbed.

The research has adopted the standard use of the Strange Situation as the measure for assessing infant attachment security throughout the literature. This is vitally important as a standard is established in which to compare current and future developments in attachment research. Unfortunately, many of the additional measures employed in the literature are established by the authors and are tailored to their particular research. As a result, the authors findings cannot be compared to others conducting similar research. Each study is an island because of this problem, with no bridge available to provide access to other resources that could build upon and enhance the findings being generated.

To increase the generalizability of the research and improve the ability to compare the literature, a standardized set of self-report measures and observations should be fashioned. This type of modification in the research will

drastically enhance the ability to identify factors that contribute to the development of a secure attachment between a father and child. By creating these general measures a common ground can be established that enables trends and patterns to emerge. These findings can prove to be beneficial in generating information for fathers to learn and utilize in their parenting in order to offer their child every opportunity to develop a secure attachment.

Second, research that involves sampling a wider variety of cultures, ethnicities, and SES can drastically augment the ability of the literature to address how fathering is impacted in these differing environments. Further, the research should also be expanded into the areas of teen parents, foster parents, adoptive parents, and step-parents. The above-mentioned groups are at-risk populations whose problems and needs are not covered in the research being conducted to date. Clearly, the current research is lacking in this respect as the samples were primarily composed of middle-class Caucasian families.

Third, the findings of this body of research should be studied in the environment where the factors that contribute to the development of a secure attachment in infants can be put to practical use. This can be accomplished through creating a parenting class for fathers where the information is presented to them and they are offered the opportunity to practice and employ the information. These fathers and their children can then be followed to determine if the information has aided in the infant developing a secure attachment. To increase the power of the study, a control group can be created by sampling fathers from the general population that did not participate in the parenting class and comparing the two groups.

Fourth, although the SS procedure is the standard for assessing attachment styles, a measure that can be administered by a questionnaire is needed. Therapists working with their clients could then employ this measure and receive vital information on the attachment style of their clients and how to best respond to them.

Finally, longitudinal studies that follow children who have their attachment style defined in infancy through life until they have children of their own are recommended. This approach would eliminate the reliance on measures that identify a parents' attachment style through self-reports of childhood experiences. In this research a clearer understanding can be generated on how a fathers' attachment style impacts the attachment security developed by his child.

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